● PRINTER RUSH ●
(PTO ASSISTANCE)

Application : 09540896 Examiner : Chang GAU : 2625

From : MWJ Location : (IDC) FMF FDC Date : 10|3|05

Tracking # : EPM-09540896 Week Date : 7|4|05

DOC CODE	DOC DATE	MISCELLANEOUS
☐ 1449	_____	☐ Continuing Data
☐ IDS	_____	☐ Foreign Priority
☐ CLM	_____	☐ Document Legibility
☐ IIFW	_____	☐ Fees
☐ SRFW	_____	☐ Other
☑ DRW	3-1-00	
☐ OATH	_____	
☐ 312	_____	
☐ SPEC	_____	

[RUSH] MESSAGE: Attn: Chief Drawingsperson
① There are lines going through the drawings.
If possible, please provide more clear
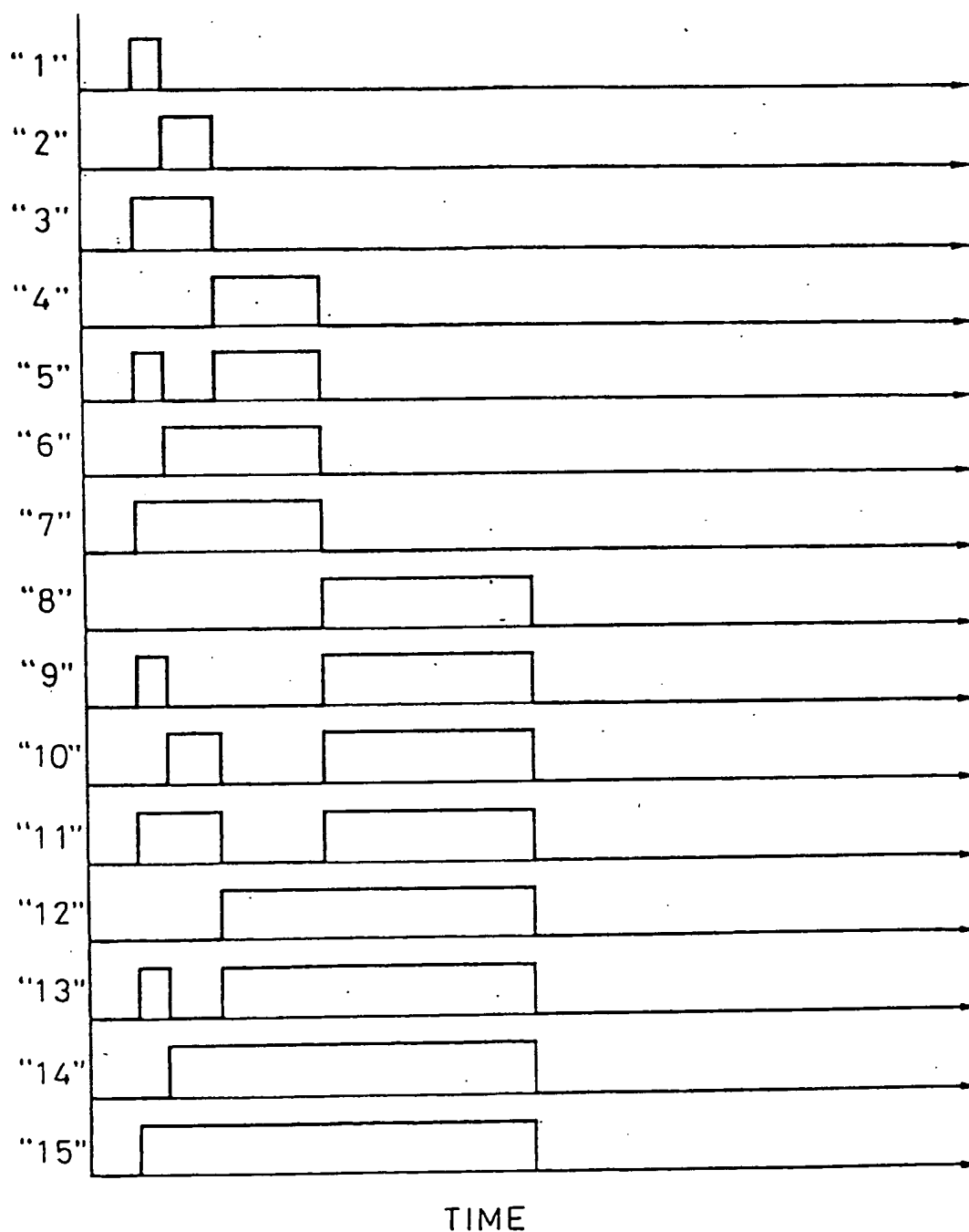copies of the obscured figures.
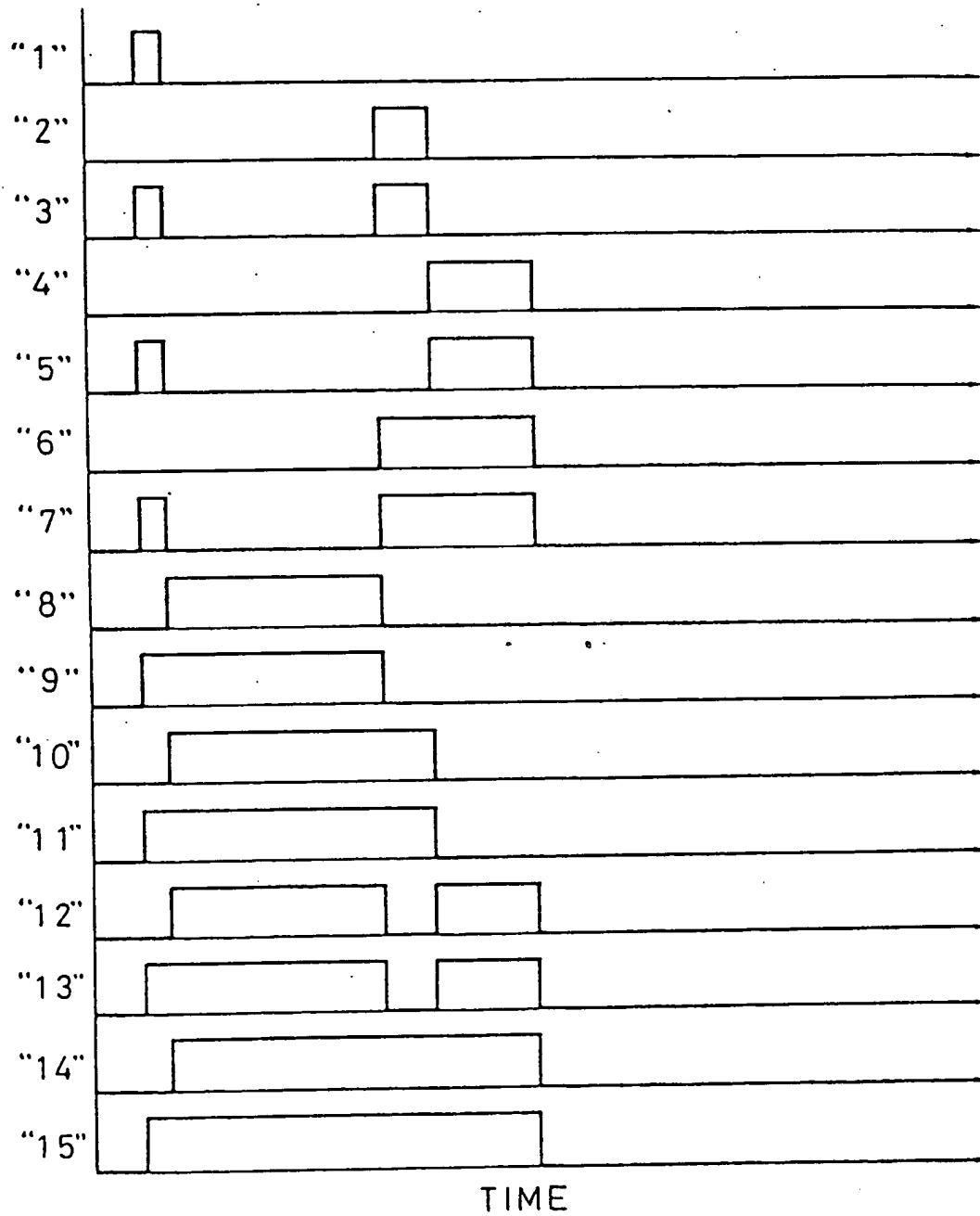
Thanks

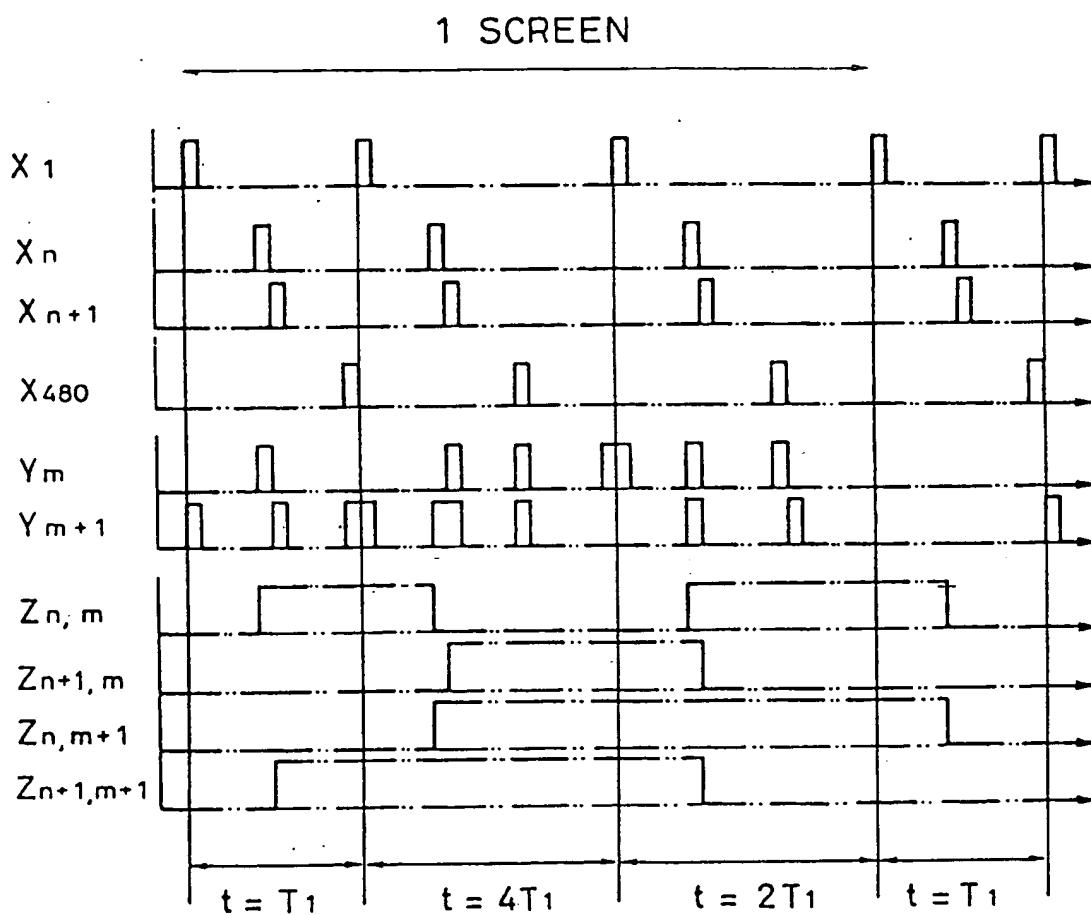[XRUSH] RESPONSE:

Drawings Corrected

10-28-2005 INITIALS

NOTE: This form will be included as part of the official USPTO record, with the Response document coded as XRUSH.
REV 10/04

FIG.1

TIME

FIG.3

TIME

FIG. 4

1 SCREEN

X_1

X_n

X_{n+1}

X_{480}

Y_m

Y_{m+1}

$Z_{n,m}$

$Z_{n+1,m}$

$Z_{n,m+1}$

$Z_{n+1,m+1}$

$t = T_1$ $t = 4T_1$ $t = 2T_1$ $t = T_1$

$Z_{n,m}$: $T_1 + 2T_1 = 3T_1$ — "3"

$Z_{n+1,m}$: $4T_1$ — "4"

$Z_{n,m+1}$: $4T_1 + 2T_1 = 6T_1$ — "6"

$Z_{n+1,m+1}$: $T_1 + 4T_1 = 5T_1$ — "5"
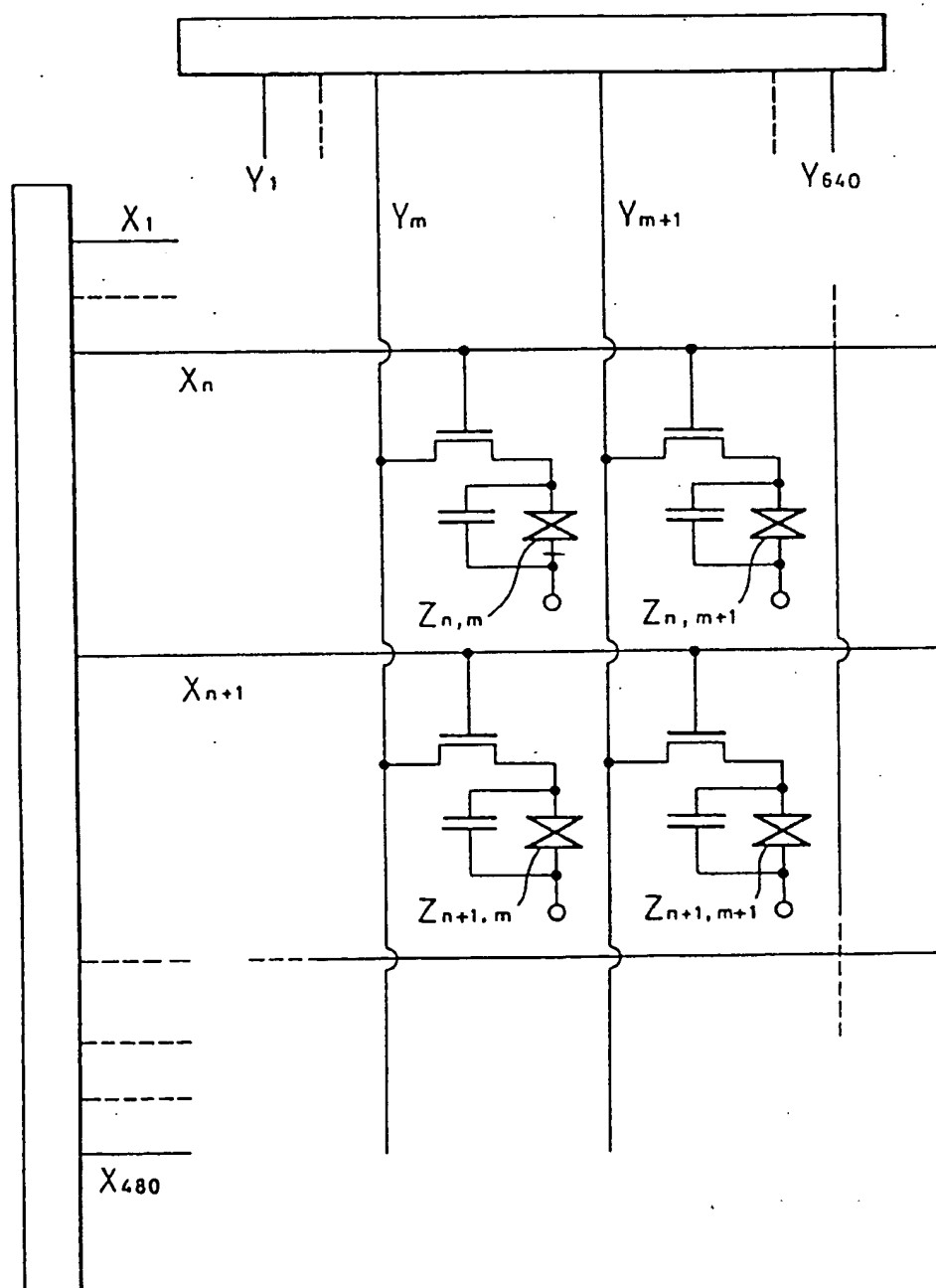
FIG. 5

FIG. 7(A)

50 51 52 53 54 ①

FIG. 7(B)

55 56

FIG. 7(C)

LASER   LIGHT

FIG. 7(D)

64 66 ② ③

63

FIG. 7(E)

69 74 ④ ⑤

73 79

FIG. 7(F)

77 71 ⑥ ⑦

FIG.8(A)

65

66   63

68

FIG.8(B)

73

74

FIG.8(C)

A

71

A'

FIG.8(D)

A

65

63

51

71

77

69

68

A'
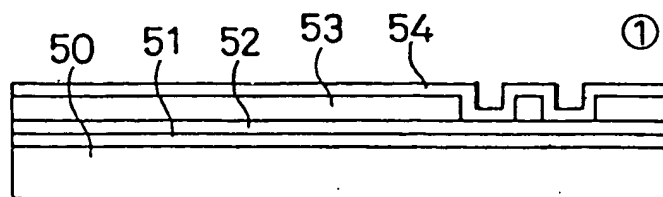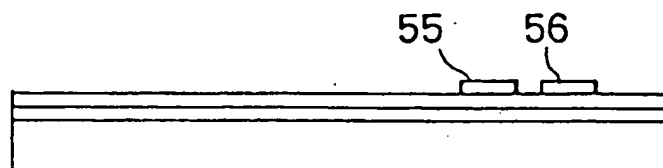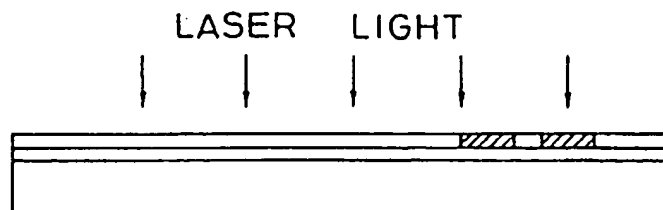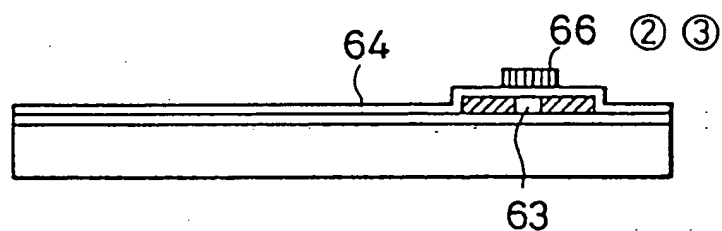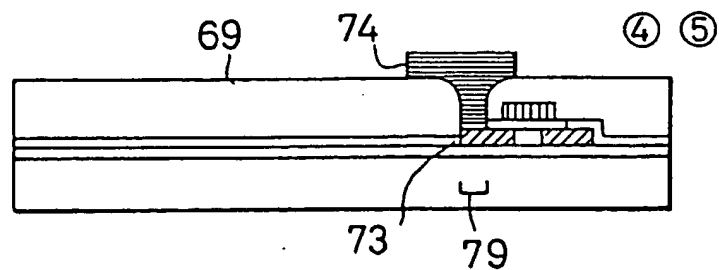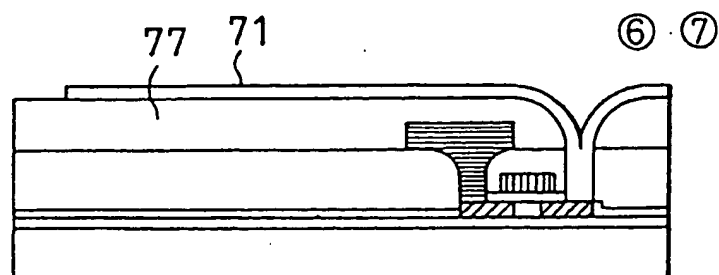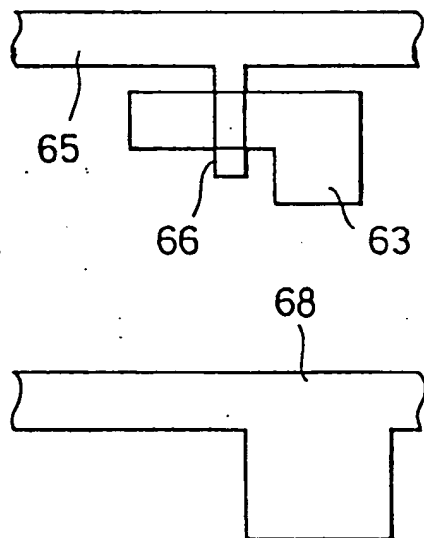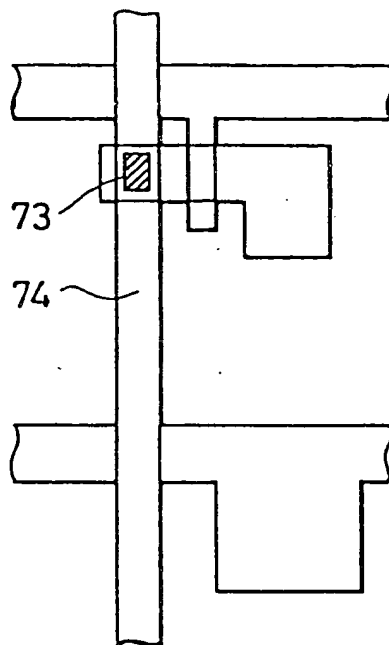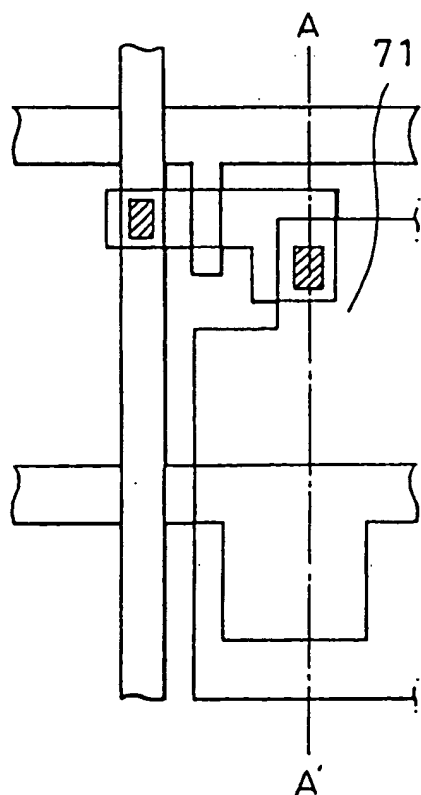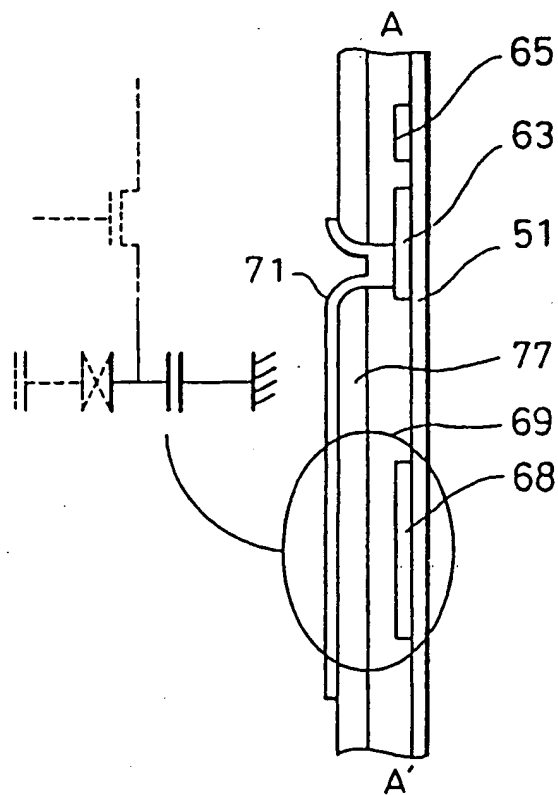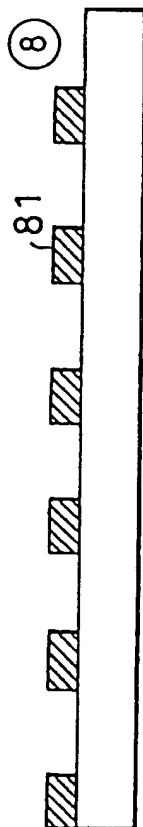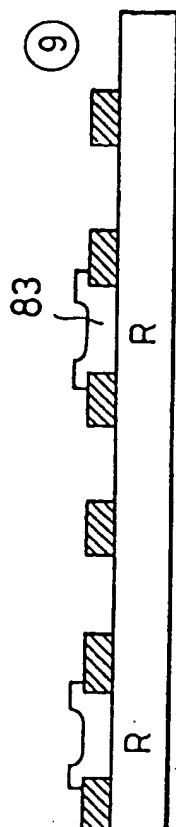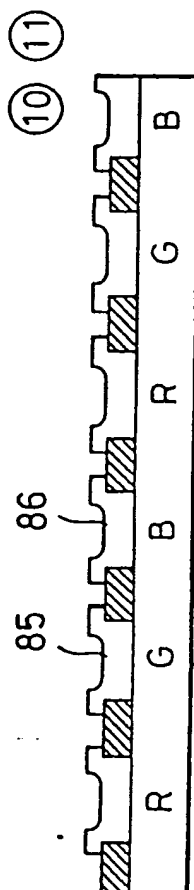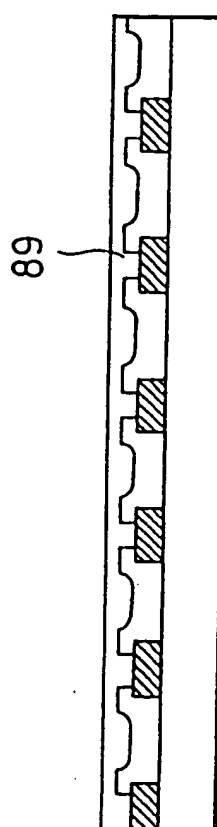
FIG.10 (A)

FIG.10 (B)

FIG.10 (C)

FIG.10 (D)
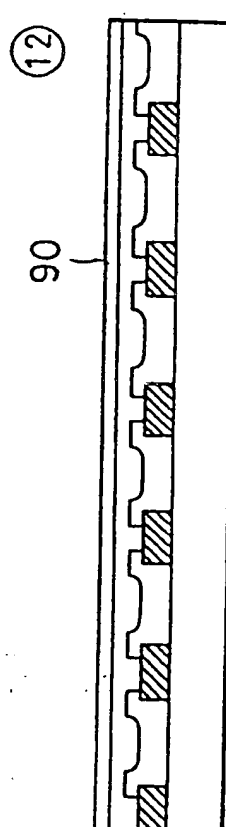
FIG.10 (E)
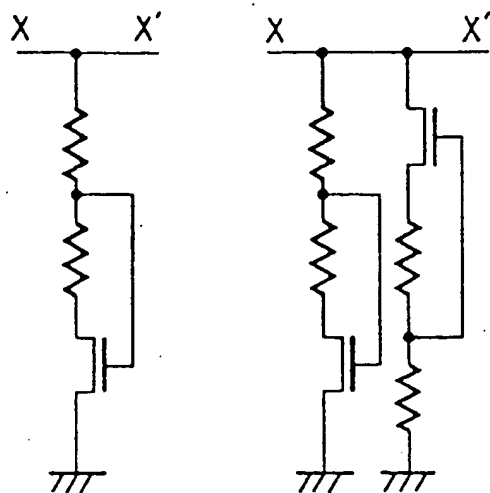
FIG.12(A) FIG.12(B)   FIG.12(C)

FIG.12(D)   FIG.12(E)

FIG.13(A)

FIG.13(B)

FIG.14

DATA o—————

SHIFT REGISTER

DLO | 1 | 2 | 3 | 4 | 5 | 6 | 7

D-CLOCK

FLM o————

HALF-TONE
CONTOROLLER
&
LOGIC
SEQUENCER

WD

3 FLAME (24BIT) × 8 DATA

FIRST IN FIRST OUT (FIFO)

RD

MEMORY

CLOCK o————

S-CLOCK

S-FLM

LCD DRIVER

SLO
1
2
3
4
5
6
7

SHIFT REGISTER

LCD DRIVER

LCD MATRIX
(TFT ACTLVE MATRIX)
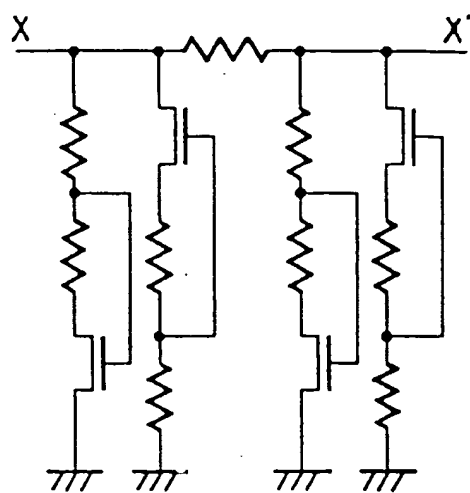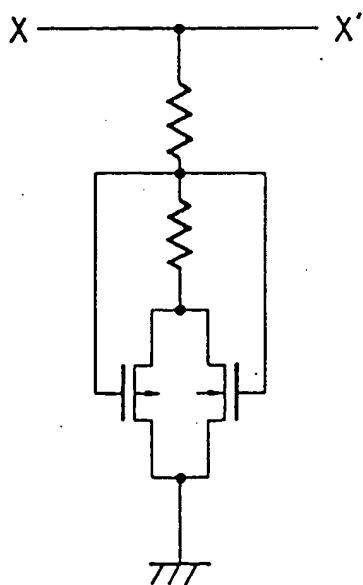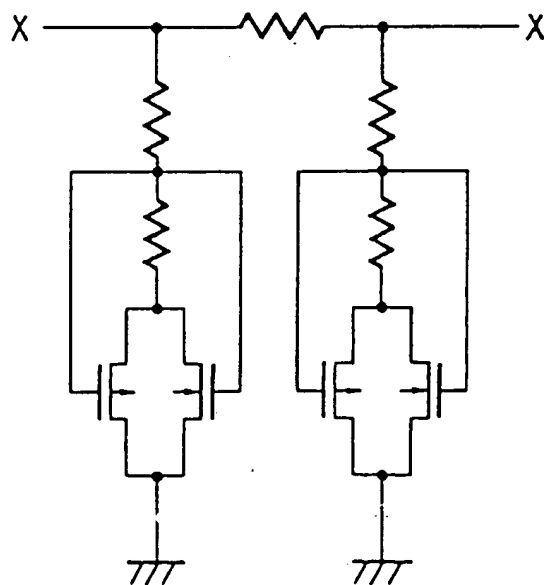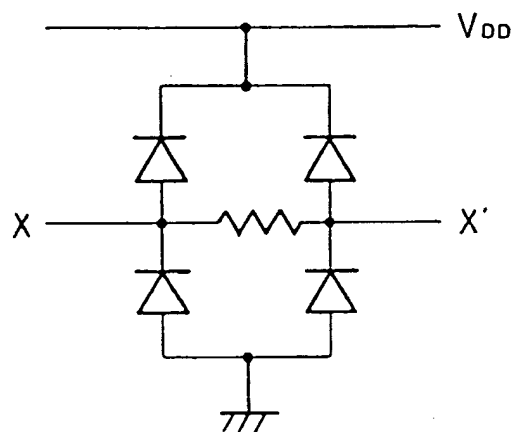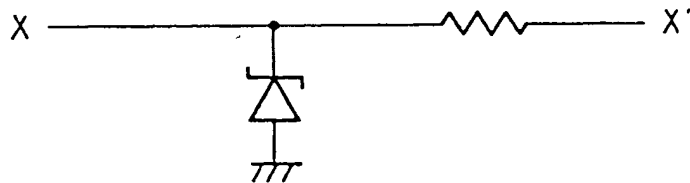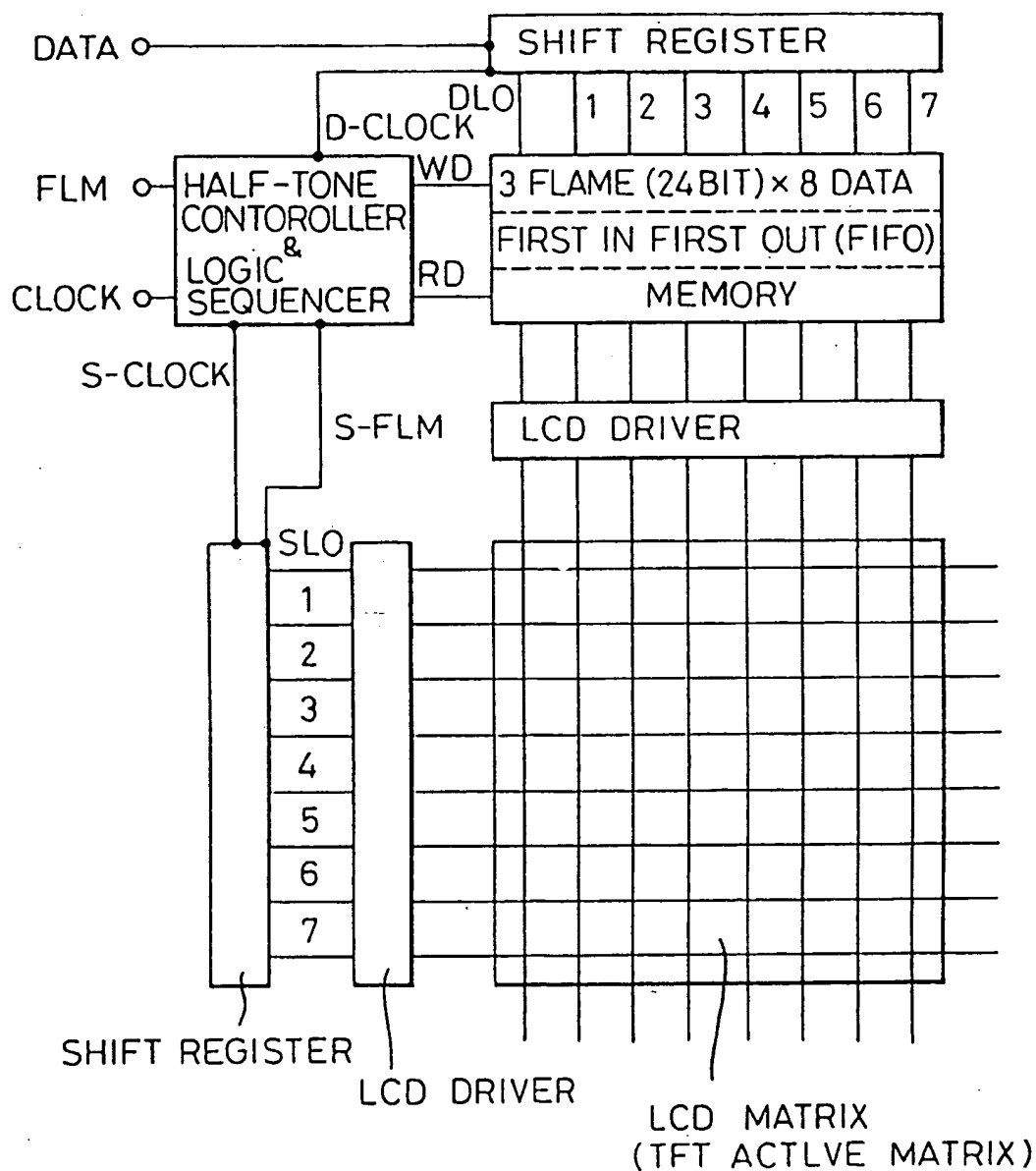
FIG. 15

DATA DISPLAYED ON SCREEN
$\left(\begin{array}{c}\text{ANALOG IMAGE SIGNAL}\\ 100 \longrightarrow \text{WHITE}\\ 0 \longrightarrow \text{BLACK}\end{array}\right)$

0	10	20	30	40	50	60	70
80	90	100	0	10	20	30	40
00	100	0	0	100	100	0	0
100	100	0	0	100	100	0	0
0	0	100	100	0	0	100	100
0	0	100	100	0	0	100	100
0	10	20	30	40	50	60	70
80	90	100	0	10	20	30	40

A/D CONVERSION

LSB #0 BIT → | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |

#1 BIT → | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |

#2 BIT → | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |

#3 BIT → | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |

#4 BIT → | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |

#5 BIT → | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |

#6 BIT → | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |

#7 BIT →

0	0	0	0	0	1	1	1
1	1	1	0	0	0	0	0
1	1	0	0	1	1	0	0
1	1	0	0	1	1	0	0
0	0	1	1	0	0	1	1
0	0	1	1	0	0	1	1
0	0	0	0	0	1	1	1
1	1	1	0	0	0	0	0

MEMORY OF DIGITAL DATA
FOR GRADATION DISPLAY

$\left(\begin{array}{c}\text{8 DOT} \times \text{8 DOT}\\ \times \text{256 GRADATIONS}\\ \text{(8 BITS) FOR}\\ \text{ONE SCREEN}\end{array}\right)$

FIG. 16

ORDER OF
TRANSFER OF
DATA IN MEMORY

⇩

LSB #0 BIT	0	1	1	1	0	0	1	1	→ 1
#1 BIT	0	0	1	0	1	1	1	1	→ 2
#2 BIT	1	1	0	0	1	1	0	0	→ 3
#3 BIT	1	1	0	0	1	1	0	0	→ 4
#4 BIT	0	0	1	1	0	0	1	1	→ 5
#5 BIT	0	0	1	1	0	0	1	1	→ 6
#6 BIT	0	1	1	1	0	0	1	1	→ 7
#7 BIT	0	0	1	0	1	1	1	1	→ 8

0	0	0	0	0	1	1	1	→ 9
1	1	1	0	0	0	0	0	→ 10
1	1	0	0	1	1	0	0	→ 11
1	1	0	0	1	1	0	0	→ 12
0	0	1	1	0	0	1	1	→ 13
0	0	1	1	0	0	1	1	→ 14
0	0	0	0	0	1	1	1	→ 15
1	1	1	0	0	0	0	0	→ 16

FIG. 19

FIG. 20

INPUT

FLM CLOCK DATA

V$_{LCD}$ CONT

DATA SHIFT REGISTER 16BIT×45(720DOT)

SEQUENCE CONTROLLER OF GRADATION DRIVING OF LCD

① ② ③ ④ ⑤ ⑥ ⑦

FIFO 720DOT×480 LINE×3SUBFLM

DRIVER   720 DOT

1 2 ... 720

1
2

LCD MATRIX

SHIFT REGISTER 480DOT

DRIVER 480 DOT

480

① DATA CLOCK   ⑤ AC CLOCK
② IN CLOCK   ⑥ SET CLOCK
③ OUT CLOCK   ⑦ SHIFT CLOCK
④ DRIVE CLOCK

FIG. 21

COMPOSITE
NTSC
MONOCHROME
INPUT   BRIGHTNESS SIGNAL

VIDEO — SYNCHRONOUS SEPARATION — A／D 8 BIT — 8BIT DATA

GRADATION DATA MEMORY

I／F TIMING SEQUENCE CONTROLLER

WRITE ADDRESS POINTER

READ ADDRESS POINTER

720 DOT x 480 LINE DUAL PORT MEMORY

7 6 5 4 3 2 1 0

FIFO

DATA SET SHIFT REGISTER

CLOCK
FLM   DATA

I／F OUTPUT

FIG. 23

FIG.24

135ns

BIPOLA PULSE

X_1

X_2

X_3

X_{480}

Y_1

Y_2

$Z_{1.1}$

$Z_{1.2}$

$Z_{2.1}$

$Z_{2.2}$

TIME